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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,117	12/23/2005	Jonathan A. Price	124--1140	1233

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EXAMINER	
MUSSER, BARBARA J	

ART UNIT	PAPER NUMBER
1791	

MAIL DATE	DELIVERY MODE
07/07/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/562,117	PRICE ET AL.	
	Examiner	Art Unit	
	BARBARA J. MUSSER	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 March 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,18,19,25,29-31,33-36,43 and 45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,18,19,25,29-31,33-36,43 and 45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The declaration under 37 CFR 1.132 filed 3/30/10 is insufficient to overcome the rejection of claims 1-8, 18, 19, 25, 29-31, 33-36, 43, and 45 based upon the rejections as set forth in the last Office action because: the declaration fails to set forth facts, only offering opinions. All the elements listed that an engineer designing a safety helmet would be concerned with are taken into account in Brine. Wilson is used to show that pre-forming a layer and injecting resin into a mold are known alternative methods of making a layer in the hat. The fact that Wilson makes a hat which does not meet PCS safety helmet standards is not relevant to the concept the reference teaches of pre-forming a layer being a known alternative to injecting resin into a mold. The two ideas being alternatives is not related to the types of materials used.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-8 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brine et al. in view of Wilson(U.S. Patent 6,401,258) and the admitted prior art.

Brine et al. discloses a method of making a helmet comprising introducing a first fabric layer into a mold, introducing a performed energy dispersive material into the

mold, and introducing a third layer made of a fabric into the mold.(Col. 2, ll. 15-Col. 3, ll. 5) Resin is applied to fabric which is then cured consolidating the three layers to form a substantially rigid polymer composite sandwich structure. The reference does not disclose using an energy dispersive material which is shaped to its desired shape prior to placement in the mold. Wilson(Col. 2, ll. 59-63; Figure 3) discloses pre-forming at least the energy dispersive layer to the final shape and then placing all the layers together into the mold where the helmet is formed which is an alternative to injecting a resin into a mold having the other layers already in the mold.(Col. 2, ll. 45-62), suggesting these are functional equivalents. The admitted prior art shows that it is known to make a helmet by injecting resin between layers placed in a mold and forming a flat sheet of energy dispersive material into the desired shape of the mold, suggesting these are functional equivalents.(Pg. 5, ll. 15- Pg. 6, ll. 16). It would have been obvious to one of ordinary skill in the art at the time the invention was made to pre-form the energy dispersive layer to the final shape prior to placement in the mold since this is a known alternative to injecting resin into a mold which the admitted prior art shows is a known alternative to using a flat sheet which is pressed into a mold, making all of these functional equivalents as they all

Regarding claims 3 and 5, one in the art would appreciate that some of the layers could be temporarily bonded(tacked) together prior to placement in the mold to insure accurate placement of the layers relative to one another and would do so for this reason.

Regarding claim 4, since Brine et al. discloses the strips of fabric are pressed into the resin, the resin must be deposited in the mold prior to placement of the fabric.(Col. 2, ll. 29-30)

Regarding claim 6, if the third layer is tacked to the second layer as suggested above, it would still require addition of resin to form the desired structure.

Regarding claim 7, since the resin is flowable, one in the art would appreciate it would be applied when the third layer is in the mold so the resin does not drip off the third layer and contaminate surrounding surfaces.

Regarding claim 8, Brine et al. discloses the fabric layers can be made of 3 layers each.(Col. 2, ll. 33)

Regarding claim 40, one in the art would appreciate that the helmet would incorporate a mounting for a visor since the presence of a visor is well-known and conventional in a helmet.

4. Claims 18, 19, 25, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brine et al. and Wilson as applied to claim 1 above, and further in view of Bothwell et al.(GB 1,173,275) and Foreman et al.(Design, Manufacture, and Test of Lightweight Composite Sandwich Helmets)

The references cited above do not disclose a second energy dispersive layer or a fifth comfort layer on the energy dispersive layer. Bothwell et al. discloses a helmet having a second energy dispersive layer(16) and a comfort liner(17). Foreman et al. disclose that a second soft energy dispersive liner is needed to absorb energy from low energy impacts while the first layer absorbs the energy from high energy impacts.(Page

8) It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a second softer energy dispersive layer and a comfort liner in the helmet of Brine et al. and Wilson since this would absorb energy from low energy impacts while the first layer absorbs the energy from high energy impacts as suggested by Foreman et al.

5. Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brine et al. and Wilson as applied to claim 1 above, and further in view of Wallace.(US Patent 4,972,527).

While Wilson discloses a helmet with the same size opening as the widest part of the helmet, helmets can be made that curve inward so that the opening is smaller than the wider part of the helmet as shown for example by Brine et al.(Figures 5-7) In order to place the second dispersive layer into the helmet, it must either be flexible enough to be bent into the helmet opening or it must be in pieces which are assembled in the helmet. One in the art would appreciate these are obvious alternatives ways of making an article fit through an opening it is too small for and would use one of these methods. After placement in the helmet, the parts would necessarily have to interconnect to prevent them from moving relative to one another. Wallace discloses several types of interconnections for energy dispersive layers known in the helmet arts, including tongue and groove.(Figure 10) It would have been obvious to one of ordinary skill in the art at the time the invention was made to use any known method of interconnecting parts to interconnect energy dispersive sections in Brine et al. and Wilson such as tongue and groove since Wallace shows that such interconnection are known in the helmet arts.

6. Claims 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brine et al. and Wilson as applied to claim 1 above, and further in view of Wagner(DE 3837189A1).

The references cited above do not disclose a barrier layer between the first energy dispersive layer and either of the fabric layers. Wagner discloses placing an epoxy layer between a foam layer and a resin to prevent the properties of one materials from affecting those of the other.(Abstract) It would have been obvious to one of ordinary skill in the art at the time the invention was made to place a layer of epoxy resin between the first energy dispersive layer and the fabric layers so the resin in the fabric would not affect the properties of the resin forming the foam as suggested by Wagner.(Abstract)

Regarding claim 34, the use of colored die to monitor the application of a material is well-known in general as shown for example by the pink dye applied to ceiling paint to monitor its application and it would have been obvious to use it for this reason.

Regarding claim 35, spraying, dipping, and brushing are well-known methods of applying a coating and it would have been obvious to use one of these methods for that reason.

Regarding claim 36, since the barrier material is intended to prevent the foam and resin in the fabric from coming into contact, one in the art would appreciate it would be impervious to the resin and cover the entire surface uniformly since a non-uniform coating would waste resin.

Response to Arguments

7. Applicant's arguments filed 3/30/10 have been fully considered but they are not persuasive.

8. Regarding the declaration, this is simply the opinion of one person - one of the inventors.

Regarding applicant's argument that Wilson teaches adhering the components together, Brine et al. teaches using resin which consolidates the three layers together. Wilson is simply used to show known alternatives.

Regarding applicant's argument that there are huge technical differences between Wilson and Brine et al., Brine et al. clearly knows how to ensure a resin matrix is fully infused into a number of layers since it infuses resin into a plurality of sheets on both the inner and outer surface of the helmet.

Regarding applicant's argument that Brine is related to building up an article from two-dimensional layers while Wilson et al. uses three-dimensional materials, Wilson discloses that any easily deformable fabric can be used(Col. 3, ll. 7-10), suggesting the fabric is not three-dimensional to start with, but is shaped to that due to its stretchability.

Regarding applicant's argument that Wilson is directed to a novelty hat, which is very different from a safety helmet, the references shows that joining preformed parts together is known in the hat art. While one making the safety helmet of Brine et al. would not use the materials of Wilson, this does not mean that the concept of using performed components would not have been obvious in view of Wilson showing such, particularly since Wilson shows this is a known alternative to injecting resin, which the

admitted prior art shows is a known alternative to the method of Brine et al., i.e. using a flat piece of foam.

9. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Regarding applicant's argument that his extremely narrow field(using sandwich core technology to form helmets) does not teach using pre-formed foam elements and that bringing them into his field requires very convincing reasoning, applicant's field is that of making helmets. Other methods of making headgear are relevant in that they deal with the same problem, forming a helmet shape, i.e. a three-dimensional shape. One in the art looking to improve on a helmet would look to other methods of joining together three-dimensional articles, such as Wilson, which shows a method of simply joining together three-dimensional articles to form a helmet shape.

10. In response to applicant's argument that Wilson is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention.

See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the reference is in applicant's field of endeavor, which is making headgear. It is also concerned with applicant's problem, i.e. making a three-dimensional shape which fits on a head.

Regarding applicant's argument as to the complex safety/design issues of a motorcycle helmet, Wilson is used to show that the concept of joining together pre-shaped elements is known as an alternative to other methods known in the helmet making arts. If the making of a helmet using pre-shaped foam requires complicated choices not easily determinable via the references, it is suggested that applicant include these complicated elements in the claims and explain how and why they would not have been obvious.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BARBARA J. MUSSER whose telephone number is (571)272-1222. The examiner can normally be reached on Monday-Thursday; alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571)-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BJM
/B. J. M./
Examiner, Art Unit 1791

/Richard Crispino/
Supervisory Patent Examiner, Art Unit 1791